Digi Connect® ES

Device Server

Hardware setup guide

Digi Connect ES Device Server Hardware setup guide

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A	June 2014	Revised and replaced document 90000715-88_D to comply with IEC 60601-1 documentation requirements.

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About Digi Connect ES Device Server

Digi Connect ES Device Server is a high performance, high-reliability serial-to-Ethernet concentrator with extended safety characteristics.

Technical description

Digi Connect ES provides serial-over-Ethernet connectivity to connect sensitive RS-232-enabled devices to the network. Both serial and Ethernet ports are galvanically isolated, and Ethernet ports offer 10/100 Mbps network interface with an optional Ethernet switch.

Digi Connect ES is intended for data collection and information management, either directly or through networks with independent devices. Digi Connect ES does not provide alarm or safety notification capabilities and is not to be used in the critical path between any device and any alarm or safety notification system.

Digi Connect ES Device Server models

This guide pertains to all Digi Connect ES Device Server models:

Base model	Regional model variants	Description
DC-ES-4SB	DC-ES-4SB-??	Digi Connect ES 4SB (4 ports)
DC-ES-8SB	DC-ES-8SB-??	Digi Connect ES 8SB (8 ports)
DC-ES-4SB-SW	DC-ES-4SB-SW-??	Digi Connect ES 4SB with Switch (4 ports)
DC-ES-8SB-SW	DC-ES-8SB-SW-??	Digi Connect ES 8SB with Switch (8 ports)

Digi Connect ES products are compliant with IEC 60601-1 3rd edition.

Digi Connect ES is intended for use as an ITE device for data transmission only. No data modification takes place within the device.

This is a Class I Electrical Device.

(AC symbol)	Alternating current	100-240V, 50-60 Hz 0.2A max
(Fuse symbol)	Fuse	250V F1A

Additional information

(icon)	All Digi Connect ES Device Server models include software in the form of firmware described in the Digi Connect Family User Guide. Go to **www.digi.com/products/serialservers/digiconnectes** to get the latest version of the guide, as well as a detailed product datasheet for the Digi Connect ES family of products.

Recycling and disposal

(WEEE symbol)	Improper disposal of IT equipment can have a negative impact on health and the environment. Dispose of equipment and accessories at an appropriate facility to enable recovery and recycling.
(recycle symbol)	Recycle packaging and guides according to your local recycling regulators.

Environmental information

(temperature symbol)	Operating temperature Storage temperature	0° C to 55° C (32° F to 130° F) -30° C to +85° C (-22° F to +185° F)
(humidity symbol)	Relative humidity	5 to 95% (non-condensing)
(altitude symbol)	Altitude	6560 feet (2000 meters)

Symbol definitions

Symbol	Definition
	Alternating current
	Atmospheric pressure limitation
LOT	Batch code
REF	Catalog number
	Caution
C E	Conforms to the European Medical Device Directive 93/42/EEC; self certified
	Consult instructions for use
YYYY	Date of manufacture
ETH	Ethernet connection
	Functional earth terminal
	Fuse
	High voltage
	Humidity limitation
	Manufacturer

Symbol	Definition
	Package recycling information
QTY	Quantity
REV	Revision number
SN	Serial number
	Temperature limitation
	Warning
	WEEE Device was put on the market after 13 August 2005. Conforms to the Directive 2003/108/EC on waste electrical and electronic equipment (WEEE) of the European Parliament.

Cautions and warnings

CAUTION!

- Do not rely on the validity of the data from this device server without validating the integrity of the entire information collection system.
- This product uses Double Pole/Neutral fusing. For continued protection against risk of fire, return the unit to the factory for fuse replacement.
- The facility staff where this equipment is installed is responsible to ensure that this equipment and the equipment it is connected to are safe, functional, and properly configured for their environment and intended use. Devices and equipment must be installed, inspected, and maintained in accordance with this guide.
- It is the responsibility of the system integrator or facility staff to verify data stream integrity periodically.
- Connect ES should be periodically cleaned.
  - When cleaning or disinfecting the device, power to the device must be turned off and the power disconnected.
  - Clean and disinfect the device periodically by wiping the outer case with a lint-free cloth, lightly moistened with warm water and a mild, non-abrasive cleaning solution or 70% isopropyl alcohol.
  - Do not use excessive pressure when wiping.
  - Do not sterilize the device server.

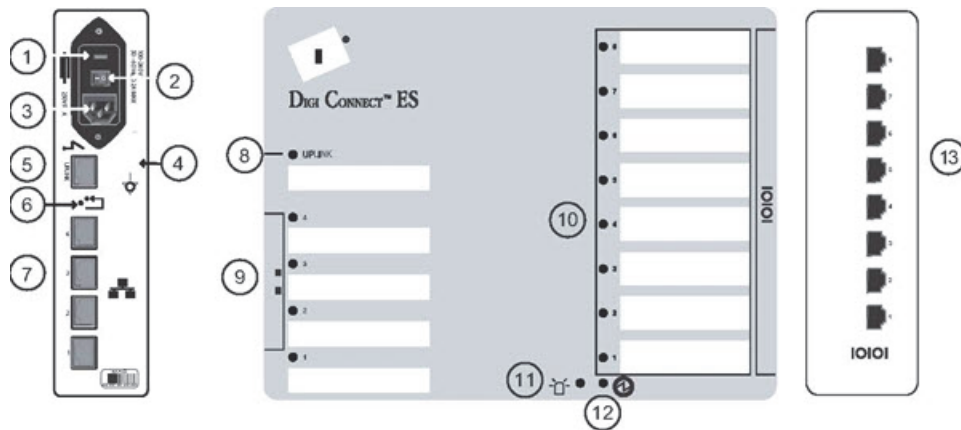**WARNING!** This device contains no user-serviceable parts. No modification of this equipment is allowed.

WARNING! In case of smoke, disconnect mains power from the device and discontinue use.

WARNING! Do not use this device in areas with high magnetic fields.

Connectors, LEDs, and controls

Callout	Symbol	Description
1	250V F1A	Fuse
2	Off On	Off/On
3	100-240V 50 - 60 Hz, 0.2A MAX	Mains power connector/Power input
4		Grounding stud
5		Ethernet uplink port
6		Reset switch
7		Ethernet switch ports
8	I	Ethernet uplink LED

Callout	Symbol	Description
9	I	Ethernet switch LED
10	I	Serial LED
11		Find me locater LED
12		Power LED
13		Serial ports (4 or 8)

Setting up Digi Connect ES Device Server hardware

Setting up Digi Connect ES Device Server hardware consists of connecting power to the device, connecting the device to the network, connecting Ethernet devices, and connecting serial devices.

Before setting up the hardware

CAUTION!   It is the installer's responsibility to ensure that this device is installed and put into service according to the EMC specifications below.

EMC specification

Guidance and manufacturer's declaration - electromagnetic emissions		
The customer or the user of the Digi Connect ES should assure that the device is used in an environment that meets EMC specifications.		
Emissions test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The Connect ES uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.

Setting up Digi Connect ES hardware

Note While following the hardware setup procedure, refer to Connectors, LEDs, and controls on page 9.

1 Place the Digi Connect ES Device Server in a suitable location, noting the following warnings:

WARNING! Mount the device server on a wall or place it on a tabletop away from high traffic areas. Keep cables out of reach and off the floor.

WARNING! To avoid risk of electric shock, this equipment must be connected to a supply mains with protective earth.

WARNING! Connect an optional grounding wire to the grounding stud (4).

WARNING! Position the Digi Connect ES such that it is easy to insert and remove the mains power connector and operate the power switch.

WARNING! To disconnect the Connect ES from the AC mains, remove the power cord from the Connect ES.

2 Powering the device on and off:

To power on the device:

a Attach the power cord to the Digi Connect ES Device Server (1).

b Turn on the power switch (2). The Power LED (12) illuminates.

To power off the device:

a Turn off the power switch (2). The Power LED (12) is no longer illuminated.

b Disconnect the power cord from the mains power connector.

Note Before cleaning or moving the device, turn off the power and disconnect the device from the mains power connector.

3 Connect the device to the Network:

- **Ethernet uplink port (5) for network:** Use an Ethernet cable to connect the Ethernet uplink port (5) to the network. The LED (8) illuminates if the connection is active and blinks if data is transmitted.

- **Ethernet port 1 for hub or switch:** On SW models, to connect the Digi Connect ES to a hub or switch, use Ethernet port 1.

4 (Optional) On SW models, connect up to four additional Ethernet devices to the remaining Ethernet ports (7). Make sure to use straight through Ethernet patch cables when connecting devices to the Digi Connect ES Device Server Ethernet ports.

5 Connect serial devices:

Connect each serial device to a serial port (13) on the Digi Connect ES Device Server. If the connection between the device and the network is established, the serial port LED (10) illuminates.

CAUTION! Ethernet and serial interfaces both use RJ-45 connectors. Make sure to connect Ethernet devices to an Ethernet interface and connect serial devices to a serial interface.

Ethernet Interface Ports

IOIOI   Serial Interface Ports

CAUTION! This equipment should be connected only to other equipment compliant with 60601 or 60950.

WARNING! Cable assemblies are designed to prevent inadvertent disconnection.

WARNING! Route cables to prevent tripping hazards.

WARNING! Connect or disconnect each serial and Ethernet cable at both ends before connecting or disconnecting another cable. Do not leave loose cables connected to the device.

WARNING! WARNING: Do not touch other persons while connecting or disconnecting serial or Ethernet devices to Connect ES.

6 Setup is complete:

- There are no operator controls on the device.

- Other than these instructions and the environmental limits listed in this guide, there are no additional requirements for operator access or positioning of the device.

- No additional setup is required from the operator.

- Any additional required configuration is done remotely following the specific procedures that the systems integrator supplies for use of this product with their software.

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